

Notice of Allowability

Application No.

10/687,763

Examiner

Jennifer Doan

Applicant(s)

ELEZZABI ET AL.

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 4/13/06.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Jennifer Doan
JENNIFER DOAN
PRIMARY EXAMINER

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

Response to Amendment

1. Applicants' amendment filed on April 13, 2006, has been fully considered and entered.

Reasons for Allowance

2. The elected claims 1-11, 13-15, 17-28 and 30-34 are allowed. The non-elected claims 12, 16 and 29 are also allowed because claims 12, 16 and 29 are dependent on the generic allowable independent claims 1 and 17.

3. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to disclose or reasonably suggest all the limitations recited in the base claims 1, 17 and 30. Specifically, the prior art of record fails to disclose a method and an apparatus of a magneto-optic modulator comprising a magnetization modulator including a conducting microstrip line, the magnetization modulator adapted to modulate a magnetization of the magneto-optic active medium when current is passed through the conducting microstrip line; whereby during operation of the biasing magnetic field generator, the magnetization modulator causes modulation of an optical signal passing through the optical waveguide in combination with the other limitations of claims 1, 17 and 30.

Claims 4-7, 13, 14 and 16 depend from claim 1.

Claims 19-22, 27 and 29 depend from claim 17.

Claim 31 depends from claim 30.

The prior art of record also fails to disclose or reasonably suggest all the limitations recited in the base claim 2. Specifically, the prior art of record fails to disclose a magneto-optic modulator comprising a magnetization modulator adapted to modulate a magnetization of the magneto-optic active medium; wherein during operation of the biasing magnetic field generator the optical signal propagates through the optical waveguide in a first direction and the biasing magnetic field generated by the biasing magnetic field generator is oriented in a second direction and has a significant component perpendicular to the first direction in combination with the other limitations of claim 2.

Claims 5 and 10-12 depend from claim 2.

The prior art of record also fails to disclose or reasonably suggest all the limitations recited in the base claims 8 and 23. Specifically, the prior art of record fails to disclose a method and an apparatus of a magneto-optic modulator comprising a magnetization modulator adapted to modulate a magnetization of the magneto-optic active medium; wherein the biasing magnetic field generator is adapted to apply a biasing magnetic field having a magnetic field strength such that a signal modulation caused by the magnetization modulator has a Fourier spectrum whose DC to 3-dB point frequencies lie in a relatively flat region of a frequency-amplitude curve of the magneto-

optic modulator below a ferromagnetic resonance frequency of the magneto-optic modulator, whereby the magneto-optic modulator operates in a non-resonant state in combination with the other limitations of claims 8 and 23.

The prior art of record also fails to disclose or reasonably suggest all the limitations recited in the base claims 9 and 24. Specifically, the prior art of record fails to disclose a method and an apparatus of a magneto-optic modulator comprising a magnetization modulator adapted to modulate a magnetization of the magneto-optic active medium; wherein the biasing magnetic field generator is adapted to apply a biasing magnetic field having a magnetic field strength such that a signal modulation caused by the magnetization modulator has a Fourier spectrum whose peak frequencies lie in a peaked region of a frequency-amplitude curve of the magneto-optic modulator substantially at a ferromagnetic resonance frequency of the magneto-optic modulator, whereby the magneto-optic modulator operates in a resonant state in combination with the other limitations of claims 9 and 24.

The prior art of record also fails to disclose or reasonably suggest all the limitations recited in the base claims 15 and 28. Specifically, the prior art of record fails to disclose a method and an apparatus of a magneto-optic modulator comprising a magnetization modulator adapted to modulate a magnetization of the magneto-optic active medium; wherein the magneto-optic active medium is such that when magnetized it causes a Faraday rotation of polarization states of optical signal propagating through

the magneto-optic active medium in a direction non-perpendicular to a direction of magnetization of the magneto-optic active medium in combination with the other limitations of claims 15 and 28.

The prior art of record also fails to disclose or reasonably suggest all the limitations recited in the base claim 18. Specifically, the prior art of record fails to disclose a method of magneto-optic modulation of an optical signal propagating in a first direction through a magneto-optic active medium, the method comprising generating in the magneto-optic active medium a biasing magnetic field in a second direction having a significant component perpendicular to the first direction and generating in the magneto-optic active medium a biasing magnetic field in a third direction having a significant component parallel to the first direction for modulating a magnetization of the magneto-optic medium in combination with the other limitations of claim 18.

Claims 25 and 26 depend from claim 18.

The prior art of record also fails to disclose or reasonably suggest all the limitations recited in the base claims 32 and 34. Specifically, the prior art of record fails to disclose a media for magneto-optic modulation comprising a conducting medium located proximate to the magneto-optic active medium and adapted to generate a magnetic field for modulating a magnetization of the magneto-optic medium when a current is passed through the conducting medium; wherein the conducting medium comprises a layer of conducting material having a surface substantially parallel to a

surface of the layer of magneto-optic active material, the surface of the layer of conducting material and the surface of the layer of magneto-optic active material facing each other and being proximate to each other and further the surface of the layer of conducting material and the surface of the layer of magneto-optic material are spaced apart by a cladding layer situated therebetween in combination with the other limitations of claims 32 and 34.

Claim 33 depends from claim 32.

The examiner agrees with applicants' arguments on page 11 in the remarks accompanying the amendment of April 13, 2006, and fully concurs that Minemoto reference does not disclose or suggest a magneto-optic modulator with all limitations as defined above.

Claims 1-34 are therefore allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-

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2346. The examiner can normally be reached on Monday to Thursday from 6:00am to 3:30pm, second Friday off.

5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JD

June 20, 2006


JENNIFER DOAN
PRIMARY EXAMINER